● Article ●

How Effective Will the Precautionary Principle Be in the Future ? : Its Role and Limits in the Settlement of Disputes*

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Abstract

This article aims to clarify the use and effectiveness of the fundamental principles in international environmental law, with special reference to the legal status of the precautionary principle. This principle is regarded as one of the cardinal principles pertaining to the overall protection of the environment in the contemporary legal system as a whole. However, despite its attractive roles in terms of preventing a possible environmental injury, the precautionary principle has by nature some limits as a legal principle of the fundamental norm-creating character in the settlement of disputes. This aspect is essentially derived from the inherent relation between science and law.

I. INTRODUCTION[1]

The 1992 Declaration of the United Nations Conference on Environment and Development (UNCED) (hereinafter Rio Declaration)[2] newly provides for the so-called fundamental principles of international environmental law, based on the 1972 Declaration of the United Nations Conference on the Human Environment (UNCHE) (hereinafter Stockholm Declaration)[3]. The precautionary principle[4], the 'polluter-pays principle'[5], the principle of public access, and the 'principle of common but differentiated responsibility' are, among others, regarded as those which have emerged in a comparatively short period of time and which continue to be in the process of being developed, covering a variety of practical contents[6]. In fact, it is not clear whether or not these principles practically mean more than the responsibility not to cause any damage to the environment of other States or of areas beyond national jurisdiction[7], as is prescribed in Principle 21 of the Stockholm Declaration[8] and Principle 2 of the Rio Declaration[9] and is also pronounced by some recent judicial decisions[10].

In particular, the precautionary principle (or precautionary approach)[11] is being debated with respect to the range of its interpretation and binding nature, since the wording of the principle is widely open to interpretation, as follows:

> Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.[12]

It is often said that the essence of this principle is 'that of taking action to address an environmental threat ahead of a disaster'[13]. However, there has been a long debate with respect to the precise contents of the fundamental principles of international environmental law, and there seems to be no clear agreement in that regard[14]. For instance, predictability is necessary for both diligent actions carried out by States and their decision-making; however, in a case wherein it is necessary to impose the regulation of environmentally harmful activities and materials, a degree needed as scientific (causal) evidence and the necessary measures are individual. Moreover, needless to say, analysing the theoretical role of the fundamental principles of international environmental law including the precautionary principle is one thing, applying and interpreting them in dispute[15] settlement procedures is quite another.

Keeping the above-mentioned in mind, this article first aims to consider, in the context of the settlement of international disputes, the role and limits of the precautionary principle which has been regarded as one of the most axiomatic principles in international environmental law. Second, it aims to examine the essential aspects which are inherent in the effectiveness of these fundamental principles.

Ⅱ. DEBATES AND PRACTICAL SITUATIONS REGARDING THE FUNDAMENTAL PRINCIPLES

1. Their Theoretical Role

The protection of the environment, first of all, makes it necessary to place as a legally protected interest a particular object and matter known as the 'environment'[16]. However, at present, in an attempt to ascertain this, the preparation of a new legal framework is a matter of urgency since the framework of the law of state responsibility, which is based on traditional international law and which principally copes with the result that has occurred.[17] Thus, international environmental law has steadily developed on the basis of the essence of 'precaution' and 'prevention' as a common sense in the law-making process and some other forum in international society.

The so-called precautionary principle has been wholly or partially enshrined in some international instruments[18] concerning marine pollution[19], international watercourses[20], air pollution and climate change[21], transboundary transaction of hazardous waste[22], transboundary trade of endangered species[23], and the conservation of the biodiversity[24] and marine living resources[25]. However, the manner in which the precautionary principle is formulated in these various instruments is very different. It is even argued that this 'proves that there is not one uniform concept of this principle'[26].

For example, Article 6 of the 1995 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (hereinafter Fish Stocks Agreement) prescribes that, where there exist uncertainty, inaccuracy, or inappropriateness of information is accompanied, 'more due diligence' shall be employed and 'lack of full scientific information' shall not be the reason to postpone or fail to take conservation and management measures[27]. Article 1 of the 2000 Cartagena Protocol (to the 1992 Convention on Biological Diversity) on Biosafety confirms Principle 15 of the Rio Declaration, and Article 10 of the same Protocol provides that '[l]ack of scientific certainty due to insufficient relevant scientific information and knowledge regarding the extent of the potential adverse effects of a living modified organism on the conservation and sustainable use of biological diversity in the Party of import, taking also into account risks to human health, shall not prevent that Party from taking a decision, as appropriate, with regard to the import of the living modified organism in question'[28]. Besides these conventional provisions, there are some cases where in domestic legal systems, the precautionary principle takes a concrete form in order to function as a part of law and regulations or a guide for policy[29].

It seems that, with respect to the fundamental environmental principles such as the precautionary principle, there are, largely speaking, the following roles to play[30]. First, these play the role of guidelines which require the elaboration and formulation of the environmental principles at the centre of which lies the idea of 'sustainable development'[31], representing a common and similar approach that is currently provided for in most of the environmental treaties. Second, these principles, as guidelines for showing a certain direction to follow, accelerate hand-in-hand the codification and progressive development of the environmental principles. Thus, they inform decision-makers of the policy targets to be implemented domestically so that there will be in their States compliance with the related rules and principles on international environmental law[32]. These points have been observed in the elaboration and sophistication of precautionary measures, specification of environmental impact assessment (EIA), consolidation of the institution of information, and consultation in the case of transboundary pollution.

2．Their Practical Limits

However, it is also important to pay attention to practical limits other than those mentioned above.

（1）Ambiguity and unclearness of the wording

The precautionary principle has been enshrined in various ways as a provision in each treaty, although its typical version may be the wording in Principle 15 of the Rio Declaration. Moreover, there seems to be a doubt with regard to whether or not the language and wording of the Rio Declaration is of any clear normative value[33].

（2）Vagueness and inconsistency

The essential point of the precautionary principle lies in taking some action to cope with an environmental threat or risk prior to an actual disaster or damage, as is mentioned above[34]. It is argued, however, that while *prevention*[35] applies to known threats, *precaution* applies to uncertain threats[36]. The measures to be taken and those to be avoided are normally decided on a case-by-case basis[37]. An attitude requiring a diligent response can lead to a non-permission or an injunction of the proposed activities. Since the precautionary principle lacks concreteness and consistency in the criteria or standard concerning precaution, it is, practically speaking, not a lawyer or a scientist but a decision-maker who eventually decides such details.

（3）Practical utility and effectiveness

In fact, there has been a long debate between the doctrine which argues that the precautionary principle in international environmental law has already become a part of customary international law, and the contrary doctrine. Eventually, this confronting situation of doctrines on the legal nature of the precautionary principle does not lead to a solution in practice, partially because it is argued that the confrontation is only 'academic'[38].

It may be said that, in international case law, there has been no case in which a legal decision was made clearly based on the legal status of the precautionary principle or a case wherein the principle had been directly applied to resolve an international dispute[39]. None of the following cases, in their judgments, made any reference to the term or the concept of the precautionary principle, despite the confronting arguments in the written and/or oral procedures between the applicants and defendants[40]; the *Case Concerning the Request for an Examination of the Situation in Accordance with Paragraph 63 of the Court's Judgment of 20 December 1974 in the* Nuclear Tests (*New Zealand v. France*) *Case* of 1995[41], the *Gabčíkovo-Nagymaros Project Case* (*Hungary/Slovakia*) of 1997[42], the *Beef Hormones Case* of 1998[43], the *Southern Bluefin Tuna Cases* (*Provisional Measures*) of 1999[44], the *MOX Plant Case* (*Provisional Measures*) of 2003[45], and the *Pulp Mills on the River Uruguay Case* (*Argentina v. Uruguay*) (*Provisional Measures*) of 2007[46].

At the bottom of this issue lies the question of whether or not the precautionary principle can be a judicial norm at all. In the procedure of provisional measures[47], for instance, the International Court of Justice (ICJ) merely considered whether or not the burden of proof had been successfully discharged, to the degree that the Court was satisfied, in the light of the emergency-related requirements of the situation in question and the (un)recoverability of rights in question.

It is noteworthy that the Order of provisional measures actually given is a precautionary approach by nature; it has thus been shown that the approach, which is 'inherent' in the concept of provisional measures[48], can be meaningfully applied without examining whether or not the precautionary principle is customary international law. Moreover, it seems right to indicate that there is no agreement on the consequences, besides the reversal of the burden of proof, that may occur as a result of the implementation of the precautionary principle, and that it is not possible to judge at the stage of provisional measures, for example, the possible damage which accompanies a summary assessment of radioactivity[49].

This being said, it may be assumed that, in the phase of provisional measures, the precautionary principle, which may be the result of the inclusion of a judgment on the merits of the consideration of the rights breached, cannot be *de facto* applied while the contents of the precautionary principle, which presupposes the

ascertainment of *status quo*, may be reflected in the objectives of provisional measures[50] because, '[p]ending the final decision'[51], the 'respective rights of either party'[52] are to be preserved[53].

Ⅲ. THE ESSENCE OF THE FUNDAMENTAL ENVIRONMENTAL PRINCIPLES

The following are some of the points with respect to the essence of the fundamental principles in international environmental law: the contents of the legal interests of environmental protection, the methodology of its implementation, and the manner of its interpretation and application in the settlement of disputes[54]. In effect, terms such as environment and environmental protection depend on the provisions of each treaty and convention, and the objects and methods of regulation and protection in each treaty, accordingly, vary considerably. In particular, the case of dispute settlement involves the issue of whether or not a rule or a principle is of character such as a legal norm necessary to judge and adjudicate in a concrete case through the interpretation and application of the fundamental principles of international environmental law[55]. Regardless of whether or not it depends both on state practice and *opino juris*[56], the essence of the precautionary principle is that the assessment of the harmful impact should be prudent and that better judgment concerning science should be made without excluding the possibility of a mistake or lack of knowledge[57]. However, explicit and specific indicators, such as the methodology of risk control (responsive measures) and the threshold level which accompany an evaluation and a judgment, must be individual. Whether a rule or a principle requires a certain action or the occurrence of a certain consequence cannot become uniformed or standardised as the contents of a principle.

As regards the legal normativity[58] described above, it seems that what matters in the long run is whether or not a rule or a principle is 'of a fundamentally norm-creating character such as could be regarded as forming the basis of a general rule of law', as was pronounced in the *North Sea Continental Shelf Cases*[59]. It is against this character that the ICJ decided that the equidistance line (median line) rule cannot become a general rule under international law in the delimitation of the EEZ or the continental shelf. Accordingly, at the Third United Nations Conference on the Law of the Sea (UNCLOS III), what was eventually agreed upon is the common and basic formula that the delimitation of the EEZ and of the continental shelf between States with opposite or adjacent coasts 'shall be effected by agreement on the basis of international law, as referred to in article 38 of the Statute of the International Court of Justice, in order to achieve an equitable solution'[60]. Thus, the terminology of the rule of the equidistance/median line disappeared from the text of the United Nations Convention on the Law of the Sea (LOSC) and the equidistance/median line rule has not been given any priority in the subsequent series of the judgments in maritime delimitation cases at the ICJ and other tribunals[61], being placed as a kind of method, approach in delimitation cases[62].

In the light of these developments and case law, it is doubtful whether or not the precautionary principle is also 'of fundamentally norm-creating character' under international (environmental) law; therefore, the *prima facie* reluctant and conservative position of judicial institutions (the ICJ in particular)[63] regarding the legal status of the precautionary principle can be construed as the one which takes into account the points mentioned above.

It is certainly true that a decision or an evaluation on the basis of the precautionary principle is cardinal as an option under a strategic policy or as a management measure in order to prevent irreparable and irreversible damage. No matter how important it may be under international environmental law, it is still vague whether the principle is a legal rule with a binding force or nothing more than a guideline which should be taken into consideration while taking measures under an environmental policy or regulation. On the contrary, it is unclear whether or not this can be originally possible.

The development of international law with regard to the relationship between the advance of technology[64] and the environmental protection closely related to it entails uncertainty[65] and unforeseeability as well as the unavoidable time-lag which follows after decision-making particularly

through negotiation[66] between concerned parties. Therefore, the elaboration of international environmental law cannot avoid being a 'catch-up' process, providing an aspect that does not necessarily suit the purpose of environmental protection requiring a prompt action. In reality, when a legal system cannot easily catch up with the development of science (and technology), economy, and society, the idea that is inherent in the precautionary principle which requires a prudent reaction and perspective towards a future containing uncertainty may, in the long run, possibly with its so-called chilling effect, compel developed countries and their corporations that challenge to be engaged in pioneering a market and reforming technology to become less positive or active with lower incentives. For example, the definition provided for the term 'continental shelf' in the 1958 Geneva Convention on the Continental Shelf[67] rapidly lost its *raison d'être* under the influence of technological innovation related to marine affairs and the change of international scene surrounding resource management. Finally, the definition developed into the one with far more complicated contents in the relevant provision in the LOSC[68]. This is a strong case to exemplify the condition under which law, in general, tardily follows the advance of science and technology[69].

Ⅳ. CONCLUSION

It may be possible for a court or a tribunal to give judgment at the stage of provisional measures that the contents which were aimed at under the precautionary principle can be brought about only by considering the graveness of a situation[70], that is, urgency and recoverability of possible damage, which are the requirements to request for provisional measures, without going so far as to invoke the precautionary principle whose fundamental normativity is still in doubt.

Moreover, since the reversal of the burden of proof is the measures possibly taken under the policy of law-making, it is not only the procedural paradigm shift in relation to litigation but also any significant development of positive norms under international environmental law that will greatly influence the role of the fundamental principles of international environmental law[71]. However, it may be said that the reversal of the burden of proof is originally derived from the idea that those who engage in a potentially and environmentally harmful activity are due to show that no more damage to the environment will occur (than legally regulated). In this case, the reversal of the burden of proof might go so far as to forbid, in principle, those activities that might basically cause any environmentally adverse impact and, eventually, to permit exceptionally an activity only if one could successfully prove that no damage would take place.

A judge *per se* at a judicial court or at an arbitral tribunal[72] will have great difficulties in rendering a judgment or a decision for resource management and/or the protection of the environment with a long perspective, even though he or she may be able to give an injunction on a short-term basis[73]. This is because, normally, he or she is not necessarily equipped with the necessary scientific knowledge or expertise to dispense justice[74]. A scientific approach, data, and information regarding the protection of the environment always entail uncertainty[75]. Accordingly, there may essentially be limits in the international (judicial) institutions that govern the environmental protection whose essence is to preserve *status quo* from the viewpoint of prevention[76]. Under these conditions and requirements, the fundamental principles of international environmental law will significantly develop and take shape through the interaction between the addition of protocols and other related complementary instruments and the implementation of the domestic law system[77], reflecting the conflicting interests between developed and developing countries (or the North-South problem[78]) and those among developed countries under the different situations of economy, science, and society.

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[1] See generally W Lang, (Ed.), *Sustainable Development and International Law*, Martinus Nijhoff, 1995, pp. 53-73; M Fitzmaurice, 'International Protection of the Environment', (2001) 293 *Recueil des Cours* 9-488; P Birnie & A Boyle, *International Law and the Environment*, 2nd edition, Oxford University Press, 2002, pp. 79-137; P Sands, *Principles of International Environmental Law*, 2nd edition, 2003; J. Verschuuren, *Principles of Environmental Law*, 2003; E Louka, *International Environmental Law: Fairness, Effectiveness, and World Order*, Cambridge University Press, 2006, pp. 49-55.

[2] UN Doc. A/CONF.151/26/Rev.1, *Report of the UNCED*, Vol. 1.

[3] UN Doc. A/CONF/48/14/REV.1.

[4] Besides those indicated in *supra* note 1, see, for example, T O'Riordan & J Cameron, (Eds.), *Interpreting the Precautionary Principle*, 1994; D Freestone & E Hey, (Eds.), *The Precautionary Principle and International Law*, 1996; D Freestone, 'International Fishieries Law Since Rio: The Continued Rise of the Precautionary Principle' in A Boyle & D Freestone, (Eds.), *International Law and Sustainable Development,* Oxford University Press, 1999, pp. 135-164; A Trouwborst, *Evolution and Status of the Precautionary Principle in International Law*, Kluwer Law International, 2002; P-M Dupuy, 'Le principe de précaution et le droit international de la mer', in *La mer et son droit: Mélanges offerts à Laurent Lucchini et Jean-Pierre Quéneudec*, Pedone, 2003, pp. 205-220; NJ Myers & C Raffensperger, (Eds.), *Precautionary Tools for Reshaping Environmental Policy*, 2005.

[5] See, for example, Principle 14 of the Rio Declaration, OECD Council Recommendations.

[6] See T Stephens, 'Multiple International Courts and the "Fragmentation" of International Environmental Law', [2006] 25 *Australian YBIL* 227, 236-238.

[7] For the original statement of this modality concerning the responsibility on the environmental damage, see the well-known *Trail Smelter* arbitral award ([1941] 3 *RIAA* 1905; (1939) 33 *AJIL* 182 and (1941) 35 *AJIL* 684), in which the tribunal concluded that 'no state has the right to use or permit the use of its territory in such a manner as to cause injury by fumes in or to the territory of another'.

[8] Principle 21 of the Stockholm Declaration reads: States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

[9] The wording of Principle 2 of the Rio Declaration is completely identical to the one of Principle 21 of the Stockholm Declaration.

[10] In its advisory opinion in the *Legality of the Threat or Use of Nuclear Weapons*, the International Court of Justice (ICJ) states that '[t]he existence of the general obligation of States to ensure that activities within their jurisdiction and control respect the environment of Other States or of areas beyond national control is now part of the corpus of international law relating to the environment'. [1996] ICJ Reports, p. 226. This part was recited in the *Case Concerning the Gabčíkovo-Nagymaros Project* (*Hungary/Slovakia*) (*Merits*). [1997] ICJ Reports, p. 53.

[11] This article does not strictly differentiate the precautionary principle from the 'precautionary approach', even though there may be a nuance between them. With respect to this point, see the separate opinion of Judge *ad hoc* Shearer in the *Southern Bluefin Tuna* Case. As regards the significance of the separate opinion of Judge Shearer, see AV Lowe, 'Advocating Judicial Activism: The ITLOS Opinions of Judge Ivan Shearer', [2005] 24 *Australian YBIL* 145.

[12] Principle 15 of the Rio Declaration. At the same time, however, one should also note that '[i]n order to protect the environment, the precautionary approach shall be widely applied by States *according to their capabilities*' (emphasis added).

[13] S Scott, 'How cautious is precautious?: Antarctic Tourism and the Precautionary Principle' (2001) 50 *ICLQ* 963.

[14] See Birnie & Boyle, *supra* note 1, pp. 79-152; Sands, *supra* note 1; I Brownlie, *Principles of Public International Law*, 6th edition, Oxford University Press, 2003, pp. 273-283.

[15] In this article, the term 'dispute' is used to signify a specific disagreement relating to a question of rights or interests in which the parties proceed by way of claims, counter-claims, denials and so on. See, for example, JG Merrills, *International Dispute Settlement*, 2nd edition, Grotius Publications Limited, 1991, p. 1; J Collier & V Lowe, *The Settlement of Disputes in International Law: Institutions and Procedures*, Oxford University Press, 1999, p. 1.

[16] The 'environment' is often referred to as a concept which includes living space, quality of life, health of human beings, including the future generation. See, for example, the *Advisory Opinion on the Legality of the Use of Nuclear Weapons* (*UNGA Advisory Opinion*), [1996] ICJ Rep para. 29; the *Gabčíkovo-Nagymaros Case,* [1997] ICJ Reports, para. 140.

[17] See, among others, Fitzmaurice, *supra* note 1, pp. 203-258; Dupuy, *supra* note 4, p. 219; R Wolfrum, C Langenfeld, & P Minnerop, *Environmental Liability in International Law: Towards a Coherent Conception*, Erich Schmidt Verlag, 2005, pp. 455-494; M Evans, (Ed.), *International Law*, 2nd edition, Oxford University Press, 2006, pp. 665-667.

[18] See Trouwborst, *supra* note 4, pp. 303-327 (for legally binding international instruments) and pp. 329-347 (for non-legally binding international instruments and

decisions).

[19] See, for example, Article 3, paragraph 2, of the 1992 Helsinki Convention on the Precaution of the Marine environment of the Baltic Sea Area.

[20] See, for example, Article 2(5) of the 1992 Helsinki Convention on the Protection and Use of Transboundary Watercourses and International Lakes.

[21] See, for example, Preamble, paragraphs 6 and 8 of the 1987 Montreal Protocol to the 1985 Convention for the Protection of the Ozone Layer on Substances that Deplete the Ozone Layer; Article 3, paragraph 3, of the 1992 Framework Convention on Climate Change.

[22] See, for example, Article 8(3) of the 1996 Protocol to the 1976 Convention for the Protection of the Mediterranean Sea Against Pollution on the Prevention of Pollution of the Mediterranean Sea by Transboundary Movements of Hazardous Wastes and their Disposal.

[23] See, for example, paragraph 14 *et al*., of the 1973 Washington Convention on International Trade in Endangered Species of Wild Fauna and Flora.

[24] See, for example, Preamble, paragraph 9, of the 1992 Nairobi Convention on Biological Diversity.

[25] See, for example, Article 5, paragraph 1(b), of the 2000 Santiago framework Agreement for the Conservation of Living Marine Resources on the High Seas of the South Pacific.

[26] Fitzmaurice, *supra* note 1, p. 269. She continues to say: '[i]t also evidences that the development of science and technology influences the formulation of even such vague and uncertain principle as the precautionary one'.

[27] See, in general, F Orrego Vicuña, *The Changing International Law of High Seas Fisheries*, 1999, pp. 156-164; M Hayashi, 'The 1995 UN Fish Stocks Agreement and the Law of the Sea', in *Order for the Oceans at the Turn of the Century*, edited by D Vidas and W Østreng, Kluwer Law International, 1999, pp. 37-53; Freestone, 1999, *supra* note 4, pp. 138-141. Orrego Vicuña, in particular, argues for the difficulties of applying the precautionary principle to fisheries management.

[28] See, in general, F McConnell, *The Biodiversity Convention: A Negotiating History*, Springer, 1996; C Bail, R Falkner & H Marquard, *The Cartagena Protocol on Biosafety*, Royal Institute of International Affairs, 2003.

[29] For some State practice regarding the legal status of the precautionary principle/approach in the domestic legal system, see, for instance, the following state practice of national legislation: the 1970 Clean Air Act (CAA section 112, 42 USC section 7412) and the Clean Water Act (CWA section 101, 33 USC section 1251) of the United States; the 1990 White Paper: This Common Inheritance: Britain's Environmental Strategy (Item 2.6) and the 1990 Environmental Protection Act of the United Kingdom; the 1991 Protection of the Environment Administration Act of Australia. See also O'Riordan & Cameron, *supra* note 4, pp. 203-261; Freestone & Hey, *supra* note 4, pp. 171-230; Birnie & Boyle, *supra* note 1, pp. 118-119; Trouwborst, *supra* note 4, pp. 178-244. For State practice of Canada and Australia with respect to ocean and coastal management, see, for instance, DR Rothwell & DL VanderZwaag, (Eds.), *Towards Principled Oceans Governance: Australian and Canadian Approaches and Challenges*, Routledge, 2006, pp. 145-202.

[30] For the general roles and functions of the fundamental principles, see, for example, Sands, *supra* note 1, pp. 289-290; Verschuuren, *supra* note 1, pp. 51-107. Verschuuren, in particular, distinguishes nine functions, which seems to be abundant and confusing, though seemingly exhaustive. Verschuuren, *supra* note 1, pp. 38-40, 129-136.

[31] On the idea of sustainable development, see, for example, P Sands, 'International Law in the Field of Sustainable Development: Emerging Legal Principles', in W Lang, (Ed.), *Sustainable Development and International Law*, 1995, *supra* note 1, pp. 53-66; Birnie & Boyle, *supra* note 1, pp. 84-97; AV Lowe, 'Sustainable Development and Unsustainable Arguments', in Boyle & Freestone, *supra* note 4, pp. 19-37; P Sands, 'Environmental Protection in the Twenty-First Century: Sustainable Development and International Law' in RL Revesz, P Sands & RB Stewart, (Eds.), *Environmental Law, The Economy and Sustainable Development: The United States, the European Union and the International Community*, Cambridge University Press, 2000, pp. 369-409. See also the separate opinion of Judge Weeramantry in the 1997 *Gabčíkovo-Nagymaros Case.*

[32] For the issue of compliance with international law, see, among others, E Benvenisti & M Hirsch, (Eds.), *The Impact of International Law of International Law on International Cooperation: Theoretical Perspectives*, Cambridge University Press, 2004, pp. 134-165.

[33] On the legal value of the Rio Declaration, see Fitzmaurice *supra* note 1, pp. 40-44; Birnie & Boyle, *supra* note 1, pp. 82-84.

[34] See *supra* note 13.

[35] Preventive measures are different from the stance of 'precaution' in that the former seeks to maintain effectiveness on the basis of territorial jurisdiction of a State and by means of the execution system which is dependent on clear scientific information and data.

[36] J Cameron's paper quoted in K Bastmeijer & R Roura, 'Regulating Antarctic Tourism and the Precautionary Principle', (2004) 98 *AJIL* 763, 772.

[37] With respect to this point, Dupuy rightly states: '[c]ette critérologie souple et complexe à la fois invite en particulier le juge à adopter une démarche évolutive dans l'appréciation des «précautions» à prendre au cas par cas, compte tenu non seulement des caractéristiques écologiques, économiques et sociales de chaque cas considéré. C'est également le cas du fait de l'évolution des connaissances scientifiques permettant souvent une amélioration progressive de la mesure des risques susceptibles d'être créés par une activité determine, par exemple le maintien ou le développement de certaines pratiques de pêche industrielle'. See Dupuy, *supra* note 4,

p. 218.

[38] Scott, *supra* note 13, p. 964.

[39] See Fitzmaurice, *supra* note 1, p. 265. She even states: '[t]he jurisprudential dispute whether precautionary principle is a binding principle of customary international law or a rule has very little significance as to its application. What is of fundamental importance is the realization that precautionary principle entails imposition of restrictions on certain activities, which may have an adverse effect on the environment, even if science is unable to predict accurately this effect'.

[40] On the issue of the 'fragmentation' of international environmental law, see Stephens, *supra* note 6, pp. 242-270.

[41] *Request for an Examination of the Situation in Accordance with Paragraph 63 of the Court's Judgment of 20 December 1974 in the* Nuclear Tests (New Zealand v. France) *Case*. [1995] ICJ Reports 288. In this case, New Zealand filed a case against France before the ICJ, requesting, partially based on the precautionary principle, the Court to give an injunction for allowing underground French nuclear test and for implementing an environmental impact assessment. The Court dismissed the request on the ground of lack of jurisdiction, without touching upon the nature of the environmental principles such as the precautionary principle. See, however, Judge Weeramantry's Dissenting Opinion, which admits that the precautionary principle is 'gaining increasing support as part of the international law of the environment'. [1995] ICJ Reports 342. Judge *ad hoc* Palmer also admits that the precautionary principle may 'now be a principle of customary international law relating to the environment'. *Id*., 412.

[42] The ICJ was requested by both Hungary and Slovakia to apply the precautionary principle with respect to the legality/illegality of suspending the dam project planned under the 1977 bilateral treaty. Without referring to or applying the principle, the Court found that Hungary had not proved that 'a real, "grave" and "imminent" "peril" existed in 1989 and that the measures taken by Hungary were the only possible response to it'. [1997] ICJ Reports 7, para 54. See the criticism provided by Sands in this regard. Sands, *supra* note 1, pp.274-275.

[43] The case was dealt with by the World Trade Organization (WTO) Appellate Body. The European Community invoked this principle to prohibit imports of beef produced in the United States and Canada due to its uncertain effect on human health. The United States did not admit that the principle was part of customary international law, but contended that it was an 'approach', the content of which might be different from context to context. See Report of the Appellate Body, WT/DS48/AB/R, para 43. The Appellate Body rather hesitated to 'take a position on this important, but abstract, question. We note that the Panel itself did not make any definitive finding with regard to the status of the precautionary principle, at least outside the field of international environmental law, still awaits authoritative formulation.' *Ibid*., para 123.

[44] See the *Southern Bluefin Tuna Cases* (*New Zealand v. Japan; Australia v. Japan*) (*Provisional Measures*). <www.itlos.org>. Australia and New Zealand, as applicant States, asked the International Tribunal for the Law of the Sea (ITLOS) to give an order of a provisional measure 'that the parties act consistently with the precautionary principle in fishing for Southern Bluefin Tuna pending a final settlement of the dispute'. The Tribunal, ordering that the parties should 'act with prudence and caution to ensure that effective conservation measures are taken to prevent serious harm to the stock', admitted the existence of 'scientific uncertainty regarding measures to be taken to conserve the stock', and 'as a matter of urgency' indicated the measures to be taken. See also RR Churchill, 'International Tribunal for the Law of the Sea: The Southern Bluefin Tuna Cases (*New Zealand v. Japan; Australia v. Japan*): Order for Provisional Measures of 27 August 1999' (2000) 49 *ICLQ* 979; V Lowe & R Churchill, 'The International Tribunal for the Law of the Sea: Survey for 2001' (2002) 17 *International J of Marine & Coastal Law* 463.

[45] See the *MOX Plant Case* (*Ireland v. United Kingdom*) (*Provisional Measures*). Ireland sued the United Kingdom before the ITLOS, claiming that the United Kingdom had not taken a precautionary approach with respect to the environmental protection of the Irish Sea upon the operation of the MOX plant. The Tribunal did not find such gravity or seriousness as to issue an order of provisional measures to suspend the operation of the plant in the light of the emergency and irreparability with respect to the situation involved. For the stage of provisional measures, see PM Eisemann, 'L'environnement entre terre et mer: Observations sur l'instrumentalisation tactique du Tribunal de Hambourg', in *La mer et son droit: Mélanges offerts à Laurent Lucchini et Jean-Pierre Quéneudec*, Pedone, 2003, pp. 221-238; B Kwiatkowska, 'The Ireland-United Kingdom (Mox Plant) Case: applying the Doctrine of Treaty Parallelism', (2003) 18 *International J of Marine & Coastal Law* 1-58.

[46] See the *Case Concerning Pulp Mills on the River Uruguay* (*Argentina v. Uruguay*), [2007] ICJ Reports. See <www.icj-cij.org/docket/>. Partially relying on the precautionary principle, Argentina sued Uruguay before the ICJ, arguing for the alleged violations by Uruguay of obligations under a bilateral treaty between the two states not to cause any environmental damage to the river and areas in question, and requesting an order of provisional measures. The Court, dismissing the request, found that the circumstance at present were 'not such as to require the exercise of its power to indicate provisional measures', there being no urgent necessity to prevent irreparable prejudice to the disputed rights. Here again the ICJ made no reference to the argument regarding the legal status of the precautionary principle.

[47] Regarding provisional measures, see among others Collier & Lowe, *supra* note 15, pp. 168-175; S Rosenne, *The Law and Practice of the International Court, 1920-2005*, 4th edition, Vol. III Procedure, Martinus Nijhoff Publishers, 2006, pp. 1375-1421.

[48] See the separate opinions of Judges Treves and Laing, respectively, in the *Southern Bluefin Tuna* Case. In particular, Judge Treves states, '[t]he precautionary approach can be seen as a *logical consequence of the need* to ensure that, when the arbitral tribunal decides on the merits, the factual situation has not changed. In other words, a precautionary approach seems to me *inherent in the very notion of provisional measures*' (emphasis added). This opinion has been strongly and widely supported by many jurists, including Dupuy (*supra* note 4, p. 216), Fitzmaurice (*supra* note 1, p. 274), and Sands (*supra* note 1, p. 276).

[49] See the separate opinion of Judge Wolfrum in the *MOX Plant Case*. He stresses that 'provisional measures should not anticipate a judgment on the merits. This basic limitation on the prescription of provisional measures – emphasised by the International Court of Justice – finds its jurisdiction in the exceptional nature of provisional measures'.

[50] In his separate opinion in the *MOX Plant Case,* Judge Treves states that '[i]t may be discussed whether a precautionary approach is appropriate as regards the preservation of procedural rights. It may be argued that compliance with procedural rights, relating to cooperation, exchange of information, etc., is relevant for complying with the general obligation of due diligence when engaging in activities which might have an impact on the environment'.

[51] Article 41, paragraph 2, of the Statute of the International Court of Justice.

[52] Article 41, paragraph 1, of the Statute of the International Court of Justice.

[53] On the issue of a possible misuse of provisional measures procedure, see Rosenne, *supra* note 47, p. 1416; T Treves, 'The Political Use of Unilateral Applications and Provisional Measures Proceedings', in JA Frowein, (Ed.), *Verhandeln für den Frieden/Negotiating for Peace, Liber Amicorum Tono Eitel*, 2002, at p. 466. For the danger of the 'tactical instrumentalisation' of the ITLOS through provisional measures, see Eisemann, *supra* note 45, pp. 231-233.

[54] See Sands, *supra* note 1, pp. 266-267: Birnie & Boyle, *supra* note 1, pp. 178-181.

[55] Lowe, *supra* note 31, pp. 26-28.

[56] See for example Brownlie, *supra* note 14, pp. 6-10; Evans, *supra* note 17, pp. 121-124.

[57] Birnie & Boyle, *supra* note 1, p. 117.

[58] For the dangers of the ceoncept of normativity in international law, including the danger of relative normativity, see P Weil, 'Towards Relative Normativity in International Law?' (1983) 77 *AJIL* 413. It is noteworthy that he states: '[t]here is a danger of the implantation in international society of a legislative power enabling certain states – the most powerful or numerous – to promulgate norms that will be imposed on the others. The fundamental distinction between *lex lata* and *lex ferenda* will be blurred, since the "law desired" by certain states will immediately become the "law established" for all, including the others' (*Id*., p. 441).

[59] See [1969] ICJ Reports, para. 72. The question put to the ICJ was:

> What principles and rules of international law are applicable to the delimitation as between the Parties of the areas of the continental shelf in the North Sea which appertain to each of them beyond the partial boundary determined … ?

[60] Articles 74(1) and 83(1) of the United Nations Convention on the Law of the Sea (LOSC), respectively.

[61] See M Evans, 'Maritime Boundary Delimitation: Where Do We Go From Here?' in D Freestone, R. Barnes, & D M Ong, (Eds.), *The Law of the Sea: Progress and Prospects*, Oxford University Press, 2006, pp. 137-160.

[62] For the function and role of the equidistance line (median line) rule, see, for instance, T Ikeshima, *The Significance of State Practice and* opinio juris *in Judicial Maritime Delimitations*, DES Mémoire submitted at GIIS/IUHEI, University of Geneva, 1999, pp. 57-59; Evans, *supra* note 61, pp. 159-160.

[63] See *Gabčíkovo-Nagymaros Project Case* (*Hungary/Slovakia*); Birnie & Boyle, *supra* note 1, pp. 107-109.

[64] On the issue of the relation between the advance of technology and its related development of international law, see AE Gotlieb, 'The Impact of Technology on the Development of Contemporary International Law', [1981] 170 *Recueil des Cours* 115; JI Charney, 'Technology and International Negotiations' (1982) 76 *AJIL* 78; M Reisman, 'International Law after the Cold War', (1990) 84 *AJIL* 859; M Lachs, 'Views from the Bench; Thoughts on Science, Techonology and World Law', (1992) 86 *AJIL* 673; T Ikeshima, *Nankyoku Joyaku Taisei to Kokusaiho: Ryodo, Shigen, Kankyo wo meguru Rigai no Chousei* (The Antarctic Treaty System and International Law: Accommodation of Interests concerning the Territory, Resources and the Environment), Keio University Press, 2000, pp. 137-138.

[65] See D Shelton, 'The Impact of Scientific Uncertainty on Environmental Law and Policy in the United States' in Freestone & Hey, *supra* note 4, pp. 209-229. She rightly states: '[t]he significance of uncertainty should depend on what is at stake. The issue is how to recognize the limitations and risks of error brought into law-making and liability' (*Id*., p. 229).

[66] For the significance of the process of negotiation and consultation on technical questions, see Charney, *supra* note 64, pp. 110-117.

[67] Article 1 of the Geneva Convention on the Continental Shelf reads:

> For the purpose of these Articles, the term 'continental shelf' is used as referring (a) to the

seabed and subsoil of the submarine areas adjacent to the coast but outside the area of territorial sea, *to a depth of 200 metres or, beyond that limit, to where the depth of the superjacent waters admits of the exploitation of the natural resources of the said areas*; (b) to the seabed and subsoil of similar submarine areas adjacent to the coasts of islands. (emphasis added)

[68] Article 76 of the UNCLOS is devoted to the 'Definition of the continental shelf', as indicated in the title of the provision. Paragraph 1 of the same article, in particular, reads:

> The continental shelf of a coastal State comprises the sea-bed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin, or to a distance of 200 nautical miles from the baseline from which the breadth of the territorial sea is measured where the outer edge of the continental margin does not extend up to that distance.

[69] As regards the dialogue between science and law, see T Ikeshima, '*Nankyoku ni okeru Kankyou Hogo no Seido: Niabuteki Chousei to Gaibuteki Chousei no Tenkai* (The Institutions concerning the Environmental Protection in the Antarctica: the Development of Internal Accommodation and External Accommodation)', (2000) 19 *Yearbook of World Law* 47, 63-64; *Id*., *supra* note 64, pp. 135-138.

[70] See Eisemann, *supra* note 45, pp. 229-231.

[71] For the new paradigm in high seas fisheries, see Freestone, *supra* note 4, pp. 163-164. He states: '[f]reedom of fishing is no longer the dominant community interest subject to certain other ill-defined environmental conditions; the conservation of marine ecosystems has now assumed independent status as a basic consideration in fishing operations'.

[72] It is noteworthy that Dupuy also states: 'l'épreuve du contentieux international semble incontournable et le role du juge évidemment determinant. C'est de lui, et notamment du Tribunal de Hambourg, de la Cour de La Haye ou d'un tribunal arbitral *ad hoc* saisis de différends relatifs, par exemple, à la protection des ressources biologiques marines, que pourrait procéder l'indication des modalités de cette transmutation d'une démarche intellectuelle en implications juridiques précises pour les Etats'. See Dupuy, *supra* note 4, p. 219.

[73] Regarding the significance of the measures taken by the ITLOS in the *Southern Bluefin Tuna* cases, Churchill rightly states: '[c]ertainly the tribunals may be able to help, at least in the short term. But it must be remembered that they do not have the necessary scientific knowledge or expertise to make longer-term decisions about the management of southern bluefin tuna, nor can they affect the actions of third parties' (footnotes omitted). See Churchill, *supra* note 44, p.989.

[74] Churchill even continues to say: '[t]he need for better scientific knowledge and the scale of fishing by third parties are both issues that are at the heart of the present crisis over the management of southern bluefin tuna'. Churchill, *supra* note 44, pp. 989-990.

[75] See O'Riordan & Cameron, *supra* note 4, pp. 19-20; Myers & Raffensperger, *supra* note 4, pp. 241-268.

[76] In relation with the feasibility and limits of the regime of environmental protection, see Wolfrum *et al*., *supra* note 17, pp. 455-514.

[77] On the issue concerning cooperation and conflicts in international environmental law, see, for instance, R Wolfrum & N Matz, *Conflicts in International Environmental Law*, Springer Verlag, 2003, pp. 159-208.

[78] For the current North-South problem and cooperation between the North and the South, see, for example, Benvenisti & Hirsch, *supra* note 32, pp. 85-116; A Cassese, *International Law*, 2nd edition, Oxford University Press, 2006, pp. 503-527.